

XXV. *Botanical Characters of some Plants of the Natural Order of MYRTI.* By James Edward Smith, M.D. F.R.S. P.L.S.

*Read October 4, 1796.*

THE natural order of MYRTI, *Juss. Gen.* 322, is composed of a number of very elegant shrubs and trees, the *genera* of which have not been clearly defined; nor, indeed, do the limits of this family seem well understood by the best writer on natural orders, M. de Jussieu.

These plants agree in having an arborefcent stem, the wood of which is generally hard, and of slow growth. Their leaves are simple, for the most part entire, and evergreen; often dotted with clear resinous spots, and almost always more or less aromatic, sometimes astringent. *Calyx* monophyllous, urceolate, or tubular, with several, generally five, teeth, the body of the calyx being permanent, and investing the fruit (in some instances pulpy), though the teeth are very frequently deciduous. *Petals* equal in number to the teeth of the calyx, alternate with them, and inserted into the rim just within them. *Stamina* inserted into the same rim within the petals, numerous, rarely only equal to the petals in number, or about twice as many; for the most part very long, but, in some instances, shorter than the corolla. *Germen* in the bottom of the calyx, simple. *Style* one. *Stigma* undivided. *Fruit* either a  
berry

berry or capsule, formed of the body of the calyx, or invested with it, consisting of one or more cells, each cell containing one or more seeds. White is the prevailing colour of the flowers. I know no instance of an inclination to blue.

Such is the general idea of the order: there are, however, some exceptions. *Eucalyptus* of L'Heritier, and *Calyptanthus* of Swartz, have no proper petals, but in their stead a simple *operculum*, or cover. *Philadelphus* has a deeply divided style, as well as dentated, deciduous leaves; in *Decumaria*, and *Escallonia* also, the leaves are not entire. This last, and two other genera (*Bæckeia* and *Memecylon*) with which M. de Jussieu was not practically acquainted, he has placed in his preceding order of ONAGRÆ, because they have stamina definite in number, that is, as many, or, at most, twice as many, as the teeth of the calyx. But I am persuaded, if he had seen all these, he would have defined his order of MYRTI so as to admit them, which is ventured upon in the character given above.

It is not my present intention to treat of every genus in this family, nor even to enumerate them all. The difficulty of arranging some beautiful kinds from New South Wales first led me to study the order, and to these I shall principally confine my remarks. They belong to the following 9 genera.

1. Imbricaria. *Jungia* of Gærtner.
2. Bæckeia of Linnæus.
3. Leptospermum of Forster.
4. Fabricia of Gærtner.
5. Metrosideros of Banks and Gærtner.
6. Melaleuca of Linnæus.
7. Myrtus of all authors.
8. Eugenia of Micheli, Linnæus, and Jussieu.
9. Eucalyptus of L'Heritier.

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The order in which I have now enumerated them accords, as nearly as can be, with their natural affinity to each other; but they belong to various classes in the artificial system of Linnæus, according to which I shall now give their generic characters.

# I. IMBRICARIA.

*Jungia*. Gærtn. Sem. v. I. 175. t. 35. f. 5.

PENTANDRIA Monogynia, next to *Escallonia*.

CHAR. GEN. Petala 5. Stigma capitatum. Capsula calyce tecta, bilocularis, polysperma.

Gærtner suspected this might not be a distinct genus from the *Escallonia* of Linn. Suppl. which he had never seen. But it differs essentially in having a capsule instead of a berry, not to mention many other particulars. See *Plant. Ic. ex Herbario Linnæano*, tab. 30 & 31.

In the unripe germen Gærtner found 2 cells, but of these one is often abortive. This is an instance, among many others, of the propriety of considering the fruit in an early state, when we form generic characters, as the natural number of the parts is often most certainly to be learned in that state. By this rule, the *Linociera* of Schreber will, if I mistake not, be found not distinct from *Chionanthus*.

Gærtner mentions two species of his *Jungia*, of which I have received one from New South Wales—that represented in his plate. In my specimens, the upper leaves, calyx, and petals, are crenate, which he has not expressed, but which is an additional mark of its affinity to *Escallonia*, the leaves of which are more or less serrated;

an unusual circumstance in this natural order. I have also another not mentioned by him.

With respect to the name, there being already a plant of a very distinct genus inscribed to *Jungius* in the *Supplementum Plantarum* of Linnæus, it becomes necessary to give this of Gærtner another denomination. Professor Gmelin has, indeed, called it *Mollia*; but, as I am ignorant of the derivation of that name, I purposely change it. However estimable this writer may be in other branches of science, he can claim no rank as a botanist. The mistakes pointed out by Mr. Dryander in the second volume of our Transactions, and by M. Lamarck in those of the Natural History Society at Paris, are but a small part of his innumerable errors. Perhaps no book in any science contains so many. The zoological part of his *Systema* is far less faulty. In that department he may be considered as authority, till some original author appears; but good-nature would wish to forget his attempts in Botany. I cannot help upon this occasion recommending, that only original authors in Natural History should have any authority to give permanent names. By original authors I mean those who have seen and examined every object which they profess to describe or enumerate, in contradistinction to compilers of the observations or nomenclature of others.

In preference therefore to *Mollia*, this genus is named *Imbricaria*, in allusion to its imbricated foliage. A farther reason for my choice of this name is to abolish the *Imbricaria* of Gmelin, taken up by him from Jussieu, which I know from original specimens to be the identical *Minusops Kauki* of Linnæus, of which Jussieu, after Commerçon's manuscripts, made a distinct genus on account of its fruit having eight cells, and as many seeds; but Commerçon observed, that four or more of these were often abortive; and, on the other hand,

hand, Rumphius tells us the *Minufops* has often as many as three or four perfect seeds. It is probable, therefore, that the germen has eight cells and eight seeds, most of which are generally abortive ; another instance of the necessity of studying that part in all its progressive states.

The species of *Imbricaria* are :

1. *IMBRICARIA crenulata*, foliis obovato-cuneiformibus apicem versus crenulatis, petalis calycibusque denticulatis.

*Jungia imbricata. Gærtn. loc. cit.*

2. *I. ciliata*, foliis triquetro-linearibus calycibusque ciliatis, germen pentagono.

To these might be added the *tenella* of Gærtner, which not having sufficiently examined, I for the present omit. All are natives of New Holland, or New South Wales.

## 2. *BÆCKEA* Linn.—*Juss. Gen.* 321.

*OCTANDRIA Monogynia*, near *Fuchsia* and *Ximenia*.

CHAR. GEN. *Petala* 5. *Calyx* 5-fidus. *Capsula* tri- vel quadri-locularis, polysperma, calyce testâ.

Jussieu first formed any tolerably just conjectures concerning the natural family of this genus, to which the descriptions of Linnæus and Osbeck by no means lead ; nor, indeed, could it have easily been referred to the myrtle tribe, without the increased knowledge of that order which we have derived from the plants of New Holland. There is no doubt, however, that *Bæckeia* belongs to the MYRTI, and not to the ONAGRÆ of Jussieu, having the closest

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affinity

affinity in character, habit, and aromatic qualities, to *Leptospermum*; from which it differs only in having but eight stamina, instead of a large indefinite number, which in this order is a sufficient generic distinction; especially as the number is very constant in all the flowers I have examined of the Chinese, as well as the New Holland, species, though I have not often found two of the stamina (as Linnæus describes them) shorter than the rest.

1. *BÆCKEA frutescens*, foliis oppositis muticis, dentibus calycinis membranaceis coloratis.

B. frutescens. *Linn. Sp. Pl.* 514. *Osbeck. Resa*, 231. t. 1. *Voyage*, v. 2. 373. t. 1.

B. chinensis. *Gærtn. Sem.* 157. t. 31.

Discovered in China by Osbeck.

2. B. *densifolia*, foliis quadrifariam imbricatis obtusis mucronulæ reflexo, dentibus calycinis foliaceis.

Sent from Port Jackson, New South Wales, by Mr. White.

3. LEPTOSPERMUM *Forst. Gen.* 36. t. 36. fig. f—l. *Juss. Gen.* 323. *Gærtn. Sem. t.* 35.

ICOSANDRIA Monogynia, after *Philadelphus*.

CHAR. GEN. *Calyx* 5-fidus, semisuperus. *Petala* 5, unguiculata, staminibus longiora. *Stigma* capitatum. *Capsula* 4- vel 5-locularis. *Semina* angulosa.

To this genus naturally belong many shrubs which were referred by Dr. Solander to *Philadelphus*, and appeared under that genus.

genus in the *Hortus Kewensis*. Forster confounded with them, under the name of *Leptospermum*, another most distinct genus, the *Metrofideros* of Banks and Solander. Gærtner first separated all these, and really understood the genus of which we are now treating, though he did not find out its genuine essential character, the capitate stigma, which (as well as the shortness of the stamina) clearly distinguishes it from *Metrofideros*. With *Philadelphus* it has no resemblance in habit, nor scarcely any botanical characters in common. The excellent Dr. Solander would certainly never have referred these plants to that genus, had he examined the common *Philadelphus* itself, which is clearly and strikingly distinguished by its more or less deeply quadrifid style and simple stigmas, without adverting to the broad base of the petals, or the differences pointed out by Gærtner in the fruit. Even Tournefort's figures shew the characters above mentioned, though the style is commonly more deeply divided than he represents it, insomuch that the flowers have often actually four styles. Duhamel describes them so, giving a very incorrect representation of these styles, with capitate stigmas (which ought to be simple), by the side of his copy of Tournefort's figure, to which his has as little resemblance as can well be.

The younger Linnæus and Professor Schreber have confounded *Leptospermum*, as well as *Metrofideros*, with *Melaleuca*, with which the latter of the two only has any great natural affinity. Dr. George Forster has fallen into the same error in his *Prodromus* published in 1786.

The species of *Leptospermum* are much less easy to define than its generic character. Many of them are to be seen in the English gardens, and several have often flowered. The following attempt to characterise such as are distinctly known to me, may serve till we have more light upon the subject; there being several more species

cies in the gardens, which I have not yet seen in sufficient perfection to discriminate them.

1. *LEPTOSPERMUM scoparium*, foliis ovatis mucronatis obsolete trinerviis, calycibus glabris; dentibus membranaceis coloratis.

*L. scoparium.* Forst. Gen. N. 6.

*L. squarrosum.* Gärtn. Sem. 174. t. 35.

*Melaleuca scoparia.* Linn. Suppl. 343. G. Forst. Prod. 37.

*Philadelphus scoparius.* Ait. Hort. Kew. v. 2. 156.

This is the most commonly cultivated species, and flowers continually. I have received it from the garden of Messrs. Lee and Kennedy, by the name of *Philadelphus floribundus*, along with three other specimens, which I suspect to be varieties of this. They were called *P. rubricaulis*, *P. rubriflorus*, and the "original *P. aromaticus*."

The variety  $\beta$  of *Hort. Kew.* is, according to Sir J. Banks's Herbarium, a very slight one, with shorter and broader leaves. This is, however, the identical *Lept. squarrosum* of Gärtner.

What *P. aromaticus* of *Hort. Kew.* is I have not determined, and must therefore omit it for the present.

2. *L. flavesceus*, foliis lineari-lanceolatis obtusis enerviis, calycibus glabris: dentibus membranaceis coloratis nudis.

The flowers appear to be of a fine yellow in the dried specimens. I have not seen this species living.

3. *L. attenuatum*, foliis lanceolato-linearibus acutis trinerviis, calycibus sericeo-villosis: dentibus membranaceis coloratis nudiusculis.

Neither

Neither have I seen this living. The flowers seem to be white, and generally grow two together on short flower-stalks, which are silky like the calyx.

4. *L. lanigerum*, foliis obovato-lanceolatis trinerviis, calycibus sericeo-villosis: dentibus foliaceis persistentibus.

*L. trinerve*. *White's Voyage*, 229. tab.

*Philadelphus laniger*. *Ait. Hort. Kew.* v. 2. 156.

*Myrtus Amboinensis montana*. *Rumph. Amb.* v. 2. t. 18.?

This species varies with smooth and downy leaves, and the calyx is sometimes merely silky, sometimes clothed with long and thick projecting down. Some of its varieties are in the gardens, especially what I take to be the  $\beta$  of *Hort. Kew.* which has small downy twisted leaves, with a little recurved point, and is commonly called *Philadelphus pubescens*. It may be a distinct species.

5. *L. parvifolium*, foliis obovatis enerviis, ramulis calycibusque pilosis: dentibus membranaceis coloratis.

Of this I have only one specimen, nor have I seen it alive; but it is very distinct.

6. *L. arachnoideum*, foliis subulatis pungentibus, ramulis hirtis, calycibus dentibusque villosis.

*L. arachnoides*. *Gærtn.* v. 1. 175. t. 35.

I have but a single specimen of this species, which agrees well with Gærtner's figure and original specimen at Sir Joseph Banks's.

7. *L. juniperinum*, foliis lineari-lanceolatis pungentibus, ramulis sericeis, calycibus glabris: dentibus membranaceis coloratis nudis.

This is in the gardens, if I mistake not; but I have not seen the flowers fresh. Mr. Fairbairn gave it me by the name of *Phil. diof-mifolius*.

8. *L. baccatum*, foliis lineari-lanceolatis pungentibus, ramulis hirtis, calycibus glabris: dentibus membranaceis coloratis pubescentibus, capsula baccata.

This is a low depressed shrub. The flowers seem to be yellow, and, by the appearance of the dried fruit, it must be very pulpy. I have received from Messrs. Lee and Kennedy a specimen which, for want of the fructification, I scarcely know whether to refer to this or to *L. arachnoideum*, but it rather appears to be that species.

9. *L. ambiguum*, foliis linearibus apice recurvis, calycibus glabriusculis: dentibus foliaceis lanceolatis nudis, staminibus corolla longioribus.

Of all the species I have examined this is the only one that has the stamina longer than the corolla, which is a character of *Metrofideros*; but as it differs from that genus, and agrees with *Leptospermum*, in the much more important character of the capitate stigma, as well as in habit, I do not hesitate to which to refer it. This species flowered magnificently in the garden of George Hibbert, Esq. F.L.S. this summer. The flowers are white.

All these 9 species I have received from New South Wales.

Perhaps *L. virgatum* of Forster, (*McLaleuca virgata* of Linn. *Suppl.*) ought to be added to the list of known species; but the two specimens in the Linnæan Herbarium, which are all I have seen, are scarcely sufficient to satisfy my doubts. The stamina, as far as I can discover, are regularly ten. If the fruit therefore be unilocular or bilocular, it may be an *Inbricaria*, with a double number of  
stamina

stamina to the other species. If the capsules should be found to have 3 or 4 cells, I should incline to reckon it a decandrous *Baeckea*, with which genus its opposite leaves, as well as the size and appearance of the flowers, agree; whereas every *Leptospermum* that I know of, has alternate leaves. It must be left for future consideration.

#### 4. FABRICIA. Gærtn. Sem. t. 35.

ICOSANDRIA Monogynia, after *Leptospermum*.

CHAR. GEN. Calyx 5-fidus, semisuperus. Petala 5, sessilia, Stigma capitatum. Capsula multilocularis. Semina alata.

Gärtner enumerates two species of *Fabricia*, of which I have received only one, his *laevigata*, from New South Wales, which is also plentiful in the gardens about London, but has never yet flowered. Neither have my specimens any flowers, though they abound with sessile axillary capsules, some of which have the style upon them. The petals being sessile (without *ungues*) is the only part of the generic character which I have borrowed from Gärtner. The numerous cells of the fruit, from 8 to 10, and especially the winged seeds, sufficiently distinguish this genus from *Leptospermum*, to which it is next akin.

The leaves of *F. laevigata* are alternate, obovate, smooth, very obscurely 3 or 5-nerved, of a light glaucous green. The teeth of the calyx are of a triangular figure, whereas in *F. myrtifolia* they are nearly orbicular. This last-mentioned species is also twice as large as the other in all its parts.

5. METROSIDEROS. *Banks. Mss. Gärtn. Sem. t. 34. f. 2.*

*Leptospermum. Forst. Gen. 36. t. 36. f. a—e & m—t.*

ICOSANDRIA Monogynia, after *Fabricia*.

CHAR. GEN. *Calyx* 5-fidus, semisuperus. *Petala* 5. *Stamina* longissima, exserta. *Stigma* simplex. *Capsula* 3 vel 4-locularis.

That this is a most distinct natural genus from *Leptospermum*, as above defined, there can be no doubt, though some great botanists have united them. Sir Joseph Banks, however, and Dr. Solander, were well aware of their difference, and characterized *Metrosideros* by its very long stamina. The stigma being simple and small, not capitate nor depressed, scarcely dilated, I beg leave to propose as a very certain and constant mark of distinction. The habit, moreover, is totally different from *Leptospermum*, and agrees with that of *Melaleuca*; at least this is the case with such species as have alternate leaves, and those with opposite ones have no resemblance to *Leptospermum*.

The petals are concave, nearly sessile, deciduous, generally less coloured than the stamina. The capsule has most generally three valves, and as many cells, rarely four. I believe it might safely be defined *trilocularis* absolutely, but I have mentioned the number four in deference to Gärtner, till I can determine and examine all his species, which are very obscure. His *gummifera* is an *Eucalyptus*, and some of his others are very doubtful. The species of this genus, described as *Melaleuca* by the younger Linnæus and Dr. G. Forster, are also very much confused, these authors having mutually misunderstood each other so often, and formed their definitions so loosely, that, with most of their original named specimens  
before

before me, I can hardly clear up every doubt; nor can I, at present, determine how many of Forster's species are among Gærtner's. The following thirteen are certainly distinct, and all in my herbarium.

\* *Foliis oppositis.*

1. *METROSIDEROS hispida*, foliis oppositis basi cordatis amplexicaulibus, ramulis pedunculis calycibusque hispidis.

This is a very magnificent species, easily distinguished by its broad sessile opposite leaves, and hispid branches. The flowers are yellow, with wide-spreading stamina, and grow in umbels, many of which unite to form a large terminal *corymbus*, rough with red-brown hairs, like those of the *Robinia hispida*. Young plants of this *Metrosideros* are to be seen in most collections about London, but none has yet flowered.

2. *M. floribunda*, foliis oppositis petiolatis ovato-lanceolatis, panicula brachiata, pedicellis umbellatis.

The flowers are smaller than those of the last, and appear to be white. The panicles are formed of several branches crossing each other; and terminating in little umbels. Sometimes the flower-stalks are hispid, sometimes smooth.

3. *M. costata*, foliis oppositis petiolatis lineari-lanceolatis acuminatis obliquis, panicula brachiato-decomposita, pedicellis subumbellatis.

*M. costata.* Gærtn. Sem. v. 1. 171. t. 34. f. 2.

This may be known from the preceding by its narrower, longer, more rigid and shining, oblique or falcated leaves. The panicle is more irregularly and repeatedly branched; its utmost ramifications

but imperfectly umbellate. The flowers are much larger, yellowish white. Both kinds are strangers to our gardens.

These three species were found at Port Jackson, New South Wales, by Mr. White.

4. *M. diffusa*, foliis oppositis ovatis venosis utrinque glabris, paniculis axillaribus terminalibusve, pedicellis oppositis.

*Melaleuca diffusa*. Forst. Prod. 37, ex descr.

———— lucida. Linn. Suppl. 342.

Gathered in New Zealand by Messrs. Forster. Of this I have seen only one specimen, which was given to Linnæus by Dr. Sparrman for the *Leptospermum collinum* of Forster. It is, however, totally different from other specimens in the Linnæan Herbarium from Forster himself, marked *collinum*, and which perfectly answer to the description. This can be no other than the *Melaleuca diffusa* of Forster's *Prodromus*.

5. *M. villosa*, foliis oppositis ovatis venosis subtus pubescentibus, thyrsis axillaribus terminalibusve oppositis villosis, floribus sessilibus confertis.

*Melaleuca villosa*. Linn. Suppl. 342.

———— æstuosa. Forst. Prod. 38.

*Leptospermum collinum*. Forst. Gen. N. 2.

*Metrosideros spectabilis*. Gärtn. Sem. v. I. 172. t. 34. f. 9.?

A native of *O-Tabeiti*. We have it not in the gardens.

The stem is much branched. Young branches and backs of the younger leaves downy; the flower-stalks, bractææ, and calyx, very much so. Flowers red, very ornamental, standing at the end of each branch in a pair of small dense panicles or *thyrsi*, which are truly

truly axillary and opposite, though the branch, terminating abruptly, is not protruded beyond them.

6. *M. florida*, foliis oppositis obovato-oblongis venosis glabris, thyrsō terminali, calycibus turbinatis nudis.

*Melaleuca florida*. Forst. Prod. 37.

*Leptospermum scandens*. Forst. Gen. N. 1.

A native of New Zealand, not yet introduced into our gardens.

The branches are long, each terminated by a *thyrsus* of large yellowish flowers, whose calyx is remarkably lengthened out, almost as in the clove. The leaves are smooth. The flower-stalks and calyx scarcely perceptibly silky, with close-pressed hairs.

7. *M. glomulifera*, foliis oppositis ovatis reticulato-venosis subtus pubescentibus, capitulis lateralibus pedunculatis bracteisque tomentosis.

Gathered near Port Jackson by Mr. David Burton. It is a tree, with round opposite branches. Leaves opposite, on shortish downy footstalks, ovate, entire, a little waved, reticulated with numerous veins, clothed with short soft down on the under side. Flowers greenish yellow, clustered in little globular heads, which stand on simple downy foot-stalks about an inch long, growing laterally, (mostly opposite to each other) just above the insertion of the uppermost leaf-stalks and contrary to them. Each head of flowers is accompanied by a pair of oblong downy bractæ, and the calyx is also downy.

This species is but slightly aromatic. It is said to be very rare.

8. *M. angustifolia*, foliis oppositis lineari-lanceolatis nudis, pedunculis axillaribus umbellatis, bracteis lanceolatis glabris deciduis.

*Myrtus angustifolia*. *Linn. Mant.* 1. 74.

A native of the Cape of Good Hope. The original specimen in the Linnæan Herbarium was sent by Professor Schreber, and, having no fruit, might easily be mistaken for a *Myrtus*. Linnæus afterwards received another specimen from Professor Thunberg, laden with ripe capsules in the lower part of the branches, and budding flowers above. This he did not perceive to be his *Myrtus angustifolia*, but, on examination of the capsules, determined it a *Leptospermum* (which it is, as that genus stands in its first author Forster), and wrote that name on the back of the paper not long before his death, as appears by the hand-writing. His son and successor, less cautious, placed this same specimen in the herbarium, writing upon it *Myrtus angustifolia*, without any remark. I find it upon examination a true *Metrosideros*. The stamina are distinct, thrice as long as the petals, and twice as long as the style, which has a perfectly simple stigma. Calyx-teeth deciduous.

The ripe capsules precisely resemble those in Gærtner's figure of *Melaleuca suarcorens*, but that is, in other respects, a very different plant.

Burman's synonym (*Flo. Afr.* 237. t. 83. f. 2.), quoted by Linnæus, can hardly belong to this plant, unless his description be very bad; for he calls the fruit a black berry, with one cell and a single seed.

The dried leaves of this species are tinged with the same metallic green that is observable in those of *Metrosideros bispida*, and some other New Holland plants of this order.

\* \* *Folius*

\* \* *Foliis alternis.*

9. *M. ciliata*, foliis sparsis sub-oppositis ellipticis obtusis coriaceis basi subciliatis, corymbis terminalibus pilosis.

*Melaleuca ciliata.* Forst. Prod. 38.

*Leptosmermum ciliatum.* Forst. Gen. N. 3.

Gathered by Messrs. Forster in New South Wales? (*Nova Guinea*). Not yet introduced into the English gardens.

The leaves are remarkably rigid, thick, and concave, their margin reflexed, like those of *Celastrus lucidus*, but less shining; whitish, and reticulated with transverse veins beneath, and marked with a straight central nerve. It is extraordinary that Dr. Forster characterizes them as without nerve or veins. Those parts may perhaps be less visible in recent specimens. The base of most of the leaves is ciliated with long spreading hairs, like those on the young branches, flower-stalks, calyx, and even petals. The flowers are large, handsome, deep-red, but few together, in a terminal corymbus or umbel. Fruit large, depressed, projecting in three lobes much above the rim of the calyx.

10. *M. linearis*, foliis sparsis linearibus canaliculatis acutis rigentibus, floribus lateralibus confertis sessilibus.

*Melaleuca linearis.* Schrader Sert. Hannoveran. 19. t. 11.

This is not uncommon in the English collections; but has not yet flowered here, though it has at Hanover. The leaves are very long, narrow, somewhat pungent, rigid, and harsh. There is a variety with semicylindrical leaves, more rough on the back than the more common kind. The flowers surround the branches in a long

long cylindrical sessile cluster. Their petals are green, often slightly downy; stamina very long, crimson. Capsules round, depressed, when old crowding each other into an angular form.

11. *M. lanceolata*, foliis alternis lanceolatis mucronatis, floribus lateralibus confertis sessilibus pubescentibus.

*M. citrina*. *Curt. Mag.* t. 260.

A beautiful shrub, now very common in every greenhouse, which first flowered several years ago at the Marchioness of Rockingham's, but not in perfection; neither does Mr. Curtis's figure give a good idea of the natural situation of its blossoms, which very nearly resemble those of the preceding.

It is totally unaccountable to me how this plant came by the name of *citrina*, there being nothing about it approaching to a lemon-colour, except the pollen, which would hardly have occasioned such a denomination. Sometimes I have imagined it might allude to a resemblance in the appearance or smell of the leaves to a lemon tree, which however does not exist; and if it did, the name ought to have been *citrea*. I would never change a name that has been generally in use, whether published or not; but this is too preposterous to be retained.

12. *M. saligna*, foliis alternis lanceolatis utrinque attenuatis mucronatis, floribus lateralibus confertis sessilibus glabris.

This is distinguished from the preceding by its tapering less rigid leaves, smaller yellowish flowers, the calyx and petals of which are quite smooth in all their parts, neither downy nor fringed. It is not in the gardens. I had a suspicion this might be the *M. viminialis* of Gærtner; but the original specimens of that species at Sir

Joseph

Joseph Banks's are very different, having linear-lanceolate leaves, not tapering at the ends, and downy flowers.

Rumphius's *tab. 17. f. 2. vol. 2*, has some resemblance to this plant, but he describes his as very aromatic, which ours is not at all.

13. *M. capitata*, foliis sparsis obovatis mucronulatis, capitulis terminalibus, calycibus ramulisque pilosis.

This differs widely in appearance from all the other species.

The leaves are scarcely one-third of an inch in length, very slightly veined, obsoletely crenate, or rather rough in the margin with minute points. Flowers on short flower-stalks, in little terminal heads. Calyx tubular, very hairy, with foliaceous permanent teeth. Petals small, purple. Stamina of the same colour, and about thrice as long as the corolla. Germen very small, in the bottom of the calyx. Style equal to the stamina; the stigma a little enlarged, but not capitate.

I have not seen the fruit in any degree of maturity, but there can be no doubt of its being that of a *Metrosideros*, as I have detected the rudiments of three small valves. The form of the flower is much like the *Lythrum* tribe. The leaves are punctate, though scarcely aromatic.

This is not, to my knowledge, in the gardens. I am indebted to Mr. White for specimens of it, and the three preceeding, from New South Wales.

6. MELALEUCA Linn.—*Gartn. Sem. t. 35. Juss. Gen. 323.*

POLYADELPHIA *Polyandria.*

CHAR. GEN. *Calyx* 5-fidus, semisuperus. *Petala* 5. *Filamenta*

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N n

multa,

multa, longissima, connata in 5 corpora. Stylus 1. Capsula 3-locularis.

Perhaps this genus is not naturally distinct from the last, the union of the filaments being all that distinguishes *Melaleuca*; for in the rest of the fructification, as well as in habit, they agree. Accordingly the younger Linnæus, the two Forsters, and Schreber unite them into one, and Jussieu seems inclined to do so. Unfortunately these great authorities fall to the ground, and their opinion can by no means be considered as of any weight in this case, as we find them confounding with the above the true genus of *Leptospermum*, than which nothing can be more distinct, in every circumstance that characterizes a natural or artificial genus. Gärtner, so little attentive in general to any thing but the fruit, preserves all the three separate; though several of his species of *Metrosideros*, which he knew only in fruit, prove to be *Melaleucæ*.

The following eleven very distinct species of *Melaleuca* I have examined in flower, and am therefore certain of their genus.

\* *Foliis alternis.*

- I. MELALEUCA *Leucadendron*, foliis alternis lanceolatis acuminatis falcato-obliquis quinquenerviis, ramulis petiolisque glabris.

M. *Leucadendron*. Linn. Mant. 1. 105. Suppl. 342 α.

Arbor alba. Rumph. Amb. v. 2. 72. t. 16.

This tree is a native of some parts of the East Indies, and from it is distilled the green aromatic oil called *Cajeput*, from *Caju Puti*, a white tree, the Malay name of the plant; hence Linnæus gave the name of *Leucadendron* to this species.

2. M. *vir-*

2. *M. viridiflora*, foliis alternis elliptico-lanceolatis coriaceis quinquenerviis; ramulis petiolisque pubescentibus.

*M. viridiflora*. Gærtn. Sem. v. I. 173. t. 35.

*M. Leucadendron* β. Linn. Suppl. 342.

Unquestionably a very distinct species from the preceding, with which the younger Linnæus confounded it. The leaves are much more thick and rigid, straight, not falcated, nor so much pointed, of a lighter colour, with generally five, but sometimes seven nerves. The footstalks and younger branches are downy, which is not the case in *M. Leucadendron*.

This grows in New South Wales. The flowers are pale yellowish green.

3. *M. laurina*, foliis alternis obovato-lanceolatis uninerviis, pedunculis axillaribus dichotomis pubescentibus.

Specimens of this were brought to Sir Joseph Banks from New South Wales by Governor Philip. It is nearly allied to *Melaleuca suaveolens* of Gærtner, tab. 35, with which its inflorescence and fructification almost entirely agree, but the leaves of that are much broader and elliptical. Those of *M. laurina* have a great resemblance to the *Daphne laureola*. Neither is this species at all aromatic, which the other should seem by its name to be. *M. suaveolens* comes from the hotter parts of New Holland, near Endeavour river.

4. *M. stypheloides*, foliis alternis ovatis mucronato-pungentibus multinerviis, floribus lateralibus, dentibus calycinis striatis mucronatis.

Gathered near Port Jackson by Mr. David Burton. It has alto-

gether the habit of a *lythelia*. The leaves are thick-set, twisted, harsh, pungent and striated, exactly as in several of that genus, and very slightly aromatic, so that it could hardly be taken for one of the *Myrti*, except by the fructification.—The flowers are white, surrounding the lower part of the youngest branches in very short clusters. Calyx downy, with erect, rigid, spinous, striated, permanent teeth. Petals smooth, membranous. Stamina twice as long as the calyx.

5. *M. ericifolia*, foliis sparsis oppositifve linearibus enerviis subrecurvis muticis, floribus lateralibus apicem versus ramulorum confertis.

The dried leaves of this species taste strongly of coriander seeds. I have not seen it growing. Its flowers are white, growing in short clusters round the branches, as in the following, but not quite so near the top. Its leaves differ widely from that species, being much smaller, not pungent nor rigid, but a little recurved. The young bark is of a silvery white. I have not seen the fruit.

6. *M. nodosa*, foliis sparsis linearibus mucronato-pungentibus rectis, floribus apicem versus ramulorum glomeratis.  
*Metrosideros nodosa*. Gærtn. Sem. v. 1. 172. t. 34. f. 6.

The leaves are numerous, scarcely an inch long, very narrow, though broader than those of *M. ericifolia*, stiff, and sharp pointed. Flowers small, whitish, clustered round the tops of the youngest branches, so as to appear like little *capitula*; but after flowering the branch is protruded beyond them, and the ripening capsules remain investing it in an annular manner. The figure of Gærtner represents them in their most advanced state, apparently bleached by exposure

exposure to the air. I have consulted his specimens, and find no reason to doubt their being the same as mine.

7. *M. armillaris*, foliis sparsis linearibus mucronatis apice recurvis, floribus lateralibus, filamentis longissimis linearibus apice radiato-multifidis.

*Metrosideros armillaris*. *Gærtn. Sem. v. I. 171. t. 34. f. 5.*

This has much the habit of a *Diosma*, in the leaves especially, which, in a garden specimen with which I was favoured from Mr. Robertson's at Stockwell, are very distinctly marked with a row of resinous spots on each side the mid-rib at the back, but these are less visible in the wild plant. The flowers are white, clustered about the lower part of the branches, in the form of a long spike. The footstalk or claw of the united filaments is very long before it branches off, even thrice the length of the petals.

8. *M. genistifolia*, foliis sparsis lanceolatis mucronatis trinerviis multipunctatis, ramulis floriferis terminalibus laxis, filamentis apice radiato-multifidis.

Sent from Port Jackson by Mr. David Burton. It is in some respects like *M. nodosa*, but the leaves are lanceolate rather than linear, not above half so long as in that species, nor so rigid and pungent. The branches terminate in loose spikes, from the top of which the branch is at length continued, as in the other species. The flowers are sessile, in alternate pairs, white. Claw of the stamina twice as long as the petals before the filaments branch off.

\* \* *Foliis*

\* \* *Foliis oppositis.*

9. *M. linariifolia*, foliis oppositis lineari-lanceolatis trinerviis subtus multipunctatis, ramulis floriferis terminalibus laxis, filamentis pinuatis.

This, we are told by Mr. White, is a large tree, the bark of which is very thick and spongy, serving the purpose of tinder. The branches are clothed with tapering glaucous leaves, thrice as long as in the last species, and from the summits spring several young branches, set with a series of opposite sessile solitary white flowers, (not, as in that, in pairs ranged alternately), beyond which the branch is soon protruded. The most essential character however of this species consists in the filaments, which are very long, being pinnated, or ranged with stamina on each side, more or less regularly, from near the base to the summit. The leaves have a nutmeg-like flavour.

10. *M. thymifolia*, foliis oppositis elliptico-lanceolatis enerviis, ramulis floriferis lateralibus brevissimis paucifloris, filamentis medium usque ramosis.

Mr. Fairbairn has presented flowering specimens of this species to the Linnæan Society from Chelsea garden. The flowers are purple, ranged along the branches of a year or two old, in little short opposite spikes; which however soon prove to be real branches by the leaves shooting out at their ends, this lateral mode of inflorescence being common to almost the whole genus, *M. laurina* and *suaveolens* only having axillary branching flower-stalks, nor have I yet seen a *Melaleuca* with terminal flowers.

The

The teeth of the calyx in *M. thymifolia* are permanent, and the whole of that part, as well as the back of the leaves, abounds with a fragrant essential oil, lodged in pellucid prominent dots.

- II. *M. hypericifolia*, foliis oppositis elliptico-oblongis uninerviis, floribus confertis, filamentis longissimis linearibus apice radiato-multifidis.

The most beautiful of the genus. It grows in swampy ground, and is found like all I have now described, except the first species, in New South Wales. *M. hypericifolia* is plentiful in the English gardens, and was generally taken for an *Hypericum*, till it lately produced, in several collections near London, its elegant flowers. These grow in a cylindrical form round the branches, and have some resemblance to those of my *Metrofideros lanceolata* (commonly called *citrina*), occasioned by the radiated crimson filaments projecting in every direction. The claws of those filaments are very long, linear, and of a dull yellowish hue like the petals.

7. MYRTUS Linn.—Gærtn. Sem. t. 38. Juss. Gen. 324.

ICOSANDRIA Monogynia.

CHAR. GEN. Calyx 5-fidus, superus. Petala 5. Bacca bivel tri-ocularis. Semina plurima, gibba.

Few genera are more confused in the works of Linnæus than *Myrtus*. The above characters will serve to define all that properly belong to this genus, of which I have received from New South Wales the following two species only.

I

1. MYRTUS

1. *MYRTUS tenuifolia*, pedunculis axillaribus solitariis unifloris, foliis linearibus mucronulatis.

An elegant little shrub which has not yet appeared in the gardens. The leaves are opposite, somewhat more than an inch in length, and about a line in breadth, slightly revolute, downy beneath. Flower-stalks silky, shorter than the leaves, each bearing a small white flower, often tinged externally with red, and not unlike the common myrtle blossom, though scarcely half so large. The germen is very silky. Calyx nearly smooth. Petals downy. The ripe fruit I have not seen, but from an examination of the germen, and every part of the flower, I think there can be no doubt of the genus.

2. *M. trinervia*, pedunculis axillaribus trifloris, foliis ovatis acuminatis trinerviis subtus tomentosis.

This is also a stranger to our gardens. The leaves are large and handsome, opposite, ovate pointed, downy beneath, with three strong nerves, as in those of *Blakea*. Flowers small, generally three together, on short, hairy, forked, axillary flower-stalks. Although the teeth of the calyx, and the petals also, are generally but four, it is a true *Myrtus*, and not an *Eugenia*, the fruit being a berry with many shining gibbous curved seeds. It has but one cell when ripe, but the germen appears to be divided into two or three cells.

# 8. EUGENIA Linn.—Juss. Gen. 324.

Syzygium. Gærtn. vol. I. 166. t. 33. f. I.

CHAR. GEN. Calyx 4-fidus, superus. Petala 4. Bacca unilocularis, monosperma.

## 1. EUGENIA

- I. *EUGENIA elliptica*, foliis ellipticis acuminatis, floribus paniculatis, calyce repando, bacca globosa.

A tree or shrub of New South Wales, with round dichotomous leafy branches. The leaves are opposite, on short foot-stalks, elliptical, pointed at both ends, entire, a little revolute, smooth, with one rib and many parallel side veins. Panicles about the summits of the branches, axillary and terminal, erect, consisting of numerous, opposite, smooth, branched and forked stalks, without *bracteæ*. Flowers small. Calyx clavate, its margin waved, but not toothed. Petals four, white, very minute and fugacious. Stamina numerous. Style short, with a simple stigma. Berry the size of a large pea, globular, white, crowned with the calyx, and consisting of a thick pulpy coat, investing a solitary seed. The leaves are full of resinous spots, and the calyx abounds with a fragrant essential oil.

No plant in the order has given me so much trouble, to determine its genus, as this. It undoubtedly belongs to the *Syzygium* of Gærtner, *tab.* 33, which is to be distinguished from *Eugenia* only by having a *bacca* with a single seed, instead of a *drupa*. Gærtner indeed has not told us exactly what he understood by *Eugenia*; nor has he figured any thing under that name; but I presume he meant either the original *Eugenia uniflora* of Micheli, or the *E. Iambos*. I have examined ripe fruits of both these, and the young germen of the former of them, which has two cells, with the rudiments of a seed in each. When the fruit is ripe, it in both species consists of one large seed, clothed with a very thin shell or skin, without any fissure or seam, and the whole enveloped in a firm fleshy pulp. In my *Eugenia elliptica* just described, the pulp is immediately attached to the seed itself, as Gærtner describes his *Syzygium*. I think however with Jussieu, that the two genera may be safely united; for we

find another circumstance, mentioned by Gærtner as discriminating them, the two cells in the germen of *Syzygium*, does not hold good, being also to be found in *Eugenia*. I beg leave here to consider as the true *Eugenia* that which Micheli first called so, and which stands in the latter editions of Linnæus in three different places, being his *Eugenia uniflora*, *Myrtus brasiliensis*, and *Plinia pedunculata*, and there is no doubt of its according exactly in generic characters with *Eugenia Iambos*. What really constitutes the genus of *Plinia* is very doubtful, Plumier's figures, and the descriptions of other authors taken from them, being a mass of inextricable confusion; but if these figures mean any thing, they cannot accord with our *Eugenia*, nor indeed do they resemble it, except in the pulpy fruit being furrowed, somewhat (but not exactly) like that of *Eugenia uniflora*. I am aware however that the opinion of Linnæus in the *Supplementum Plantarum* is here against me, as well as that of my accurate friend Mr. Dryander in the *Hortus Kewensis*. If Plumier's original species of *Plinia* should ever be found, it will remove the doubt. In the mean time, one of the few points of which we are certain is, that if the common *Eugenia uniflora* be not a *Plinia*, it must constitute the real genus of *Eugenia*, whatever the other plants may be that are now arranged under that name; and if it be a *Plinia*, *Eugenia Iambos* is one likewise.

9. EUCALYPTUS. *L'Heritier Sert. Angl. t. 20. Ait. Hort. Kew. v. 2. 157. Bot. of New Holl. t. 13.*

CHAR. GEN. *Calyx* superus, persistens, truncatus, ante anthesin tectus operculo integerrimo, deciduo. *Corolla* nulla. *Capsula* quadrilocularis, apice dehiscens, polysperma.

There

There is not a more natural genus in the whole Linnæan system than this. It is clearly characterized at first sight by the singular *operculum* which closes the calyx, and covers up the stamina and style till they arrive at maturity. In this respect it agrees with the *Calyptranthes* of Dr. Swartz, but differs from that genus in having a capsule, not a berry.

All the species of *Eucalyptus* hitherto discovered come from New Holland. Gærtner being unacquainted with the peculiar structure of their flower, confounded some of them with *Metrosideros*. They agree so much with one another in habit and leaves, as to be impossible to discriminate, except by their inflorescence, and the form of their *opercula*. I have already characterized some of them in the *Botany of New Holland*, p. 39 to 44; but having since become acquainted with many more, it is necessary to revise the whole, and contrast their specific characters.

The leaves of all are entire, lanceolate, rarely ovate, more or less oblique or unequal at the base; flowers either in umbels or *capitula*; the former of which are either solitary or paniced, lateral or terminal; the latter always solitary and lateral. The genus is conveniently divided into two sections, in one of which the cover of the flower is conical, in the other hemispherical.

\* *Operculo conico.*

- I. *EUCALYPTUS robusta*, operculo conico medio constricto calyce latiori, umbellis lateralibus terminalibusque, foliis ovatis.

E. robusta. *Bot. of New Holland*, 4o. t. 13.

This is called the brown gum tree, or New Holland Mahogany, its wood being red, hard and heavy, in some degree answering the

purposes of the West Indian mahogany. Its leaves are broader than in any other species that has come to my knowledge, and the flowers larger, except only those of *E. corymbosa*.

2. *E. pilularis*, operculo conico medio constricto longitudine calycis, umbellis lateralibus, fructu globofo, foliis linearilanceolatis.

The leaves are much narrower than in the preceding, and the flowers not half so large; neither is their cover, as in that, more in diameter than the calyx. The fruit is globose. I suspect that of *E. robusta* to be turbinate with a reflexed margin, but I have seen it only half ripe.

3. *E. tereticornis*, operculo conico tereti lævissimo membranaceo calyce latiori triploque longiore, umbellis lateralibus solitariis.

*E. tereticornis.* *Bot. of New Holland*, 41.

Remarkable for its long, very smooth, membranous *operculum*, which bursts just above the base, leaving the lower part like a ring sticking for some time to the calyx. The leaves are lanceolate and oblique.

4. *E. resinifera*, operculo conico tereti coriaceo calyce duplo longiori, umbellis lateralibus solitariis.

*E. resinifera.* *White's Voyage*, 231. *tab.*

*Metrosideros gummifera.* *Gärtn. Sem. v. 1. 170. t. 34. f. 1.*

At first sight this nearly resembles the last; but on accurate examination the *operculum* is found only twice the length of the calyx, and

and barely of the same diameter with it, not broader. It is moreover not so smooth, nor of the membranous texture of the *tereticornis*, but thick and leathery as in the other species, separating entirely from the base.

FIG. g in Mr. White's plate we now know to be a diseased flower, not an impregnated one.

5. *E. capitellata*, operculo conico obtusiusculo calyceque anguloso subancipiti, capitulis lateralibus solitariis, fructu globoso, foliis ovato-lanceolatis.

*E. capitellata*. *Bot. of New Holland*, 42.

Fruit, *White's Voy.* 226. *tab. fig. a.*

This essentially differs from all the preceding, in bearing its flowers in *capitula*, or little heads, (that is, without partial flower-stalks) instead of umbels. The cover is not more than equal to the calyx in length, angular like that part, and compressed at the summit. The leaves ovato-lanceolate, rigid, oblique.

6. *E. saligna*, operculo conico acuto calyceque anguloso subancipiti, capitulis lateralibus solitariis, fructu turbinato, foliis lineari-lanceolatis.

The leaves are narrower and less coriaceous than in most of the species. The little heads of flowers grow on shortish flower-stalks, one from the bosom of each leaf. The flowers are smaller than in any of the others. Their covers acute, the length of the calyx. Fruit turbinate with a slightly recurved margin, and crowned with the pyramidal permanent base of the style.

\*\* *Operculo*

\* \* *Operculo hemisphærico.*

7. *E. botryoides*, operculo hemisphærico submutico, capitulis lateralibus solitariis, pedunculis cuneatis compressis, fructu turbinato.

This, like the two preceding, bears its flowers in solitary *capitula*, but is distinguished from them by its broad hemispherical *opercula*, with scarcely any point at their summit, which, from the clustering together of the flowers, look like bunches of some kind of berries. The common flower-stalks are flat, and very broad, especially at the top. The leaves lanceolate, oblique.

8. *E. hæmastoma*, operculo hemisphærico depresso mucronulato, umbellis lateralibus terminalibusque; pedunculis compressis, ramulis angulatis, fructu subglobofo.

The leaves are coriaceous, lanceolate, terminating in a long linear point. Flowers in umbels, not *capitula*, their covers depressed at the top, but suddenly terminating in a little point. Fruit globose, cut off at the summit, its orifice surrounded by a broad deep-red border. This species has a great affinity with the *Leptospermum umbellatum* of Gærtner, but I dare not assert it to be the same.

9. *E. piperita*, operculo hemisphærico mucronulato, umbellis lateralibus subpaniculatis solitariisve; pedunculis compressis, ramulis angulatis.

*E. piperita*. *White's Voyage*, 226. tab. leaves only. *Bot. of New Holland*, 42.

Very distinct and different in appearance from the last, though their

their specific characters are very similar. The leaves of *E. piperita* are nearly ovate, though oblique. Flowers smaller than those of the preceding, and situated all in great numbers about the lower part of the branches, not near the top, a few of the umbels only being solitary, the rest uniting to form several panicles or *corymbi*.

10. *E. obliqua*, operculo hemisphærico mucronulato, umbellis lateralibus folitariis; pedunculis ramulisque teretibus.

*E. obliqua*. *Ait. Hort. Kew.* v. 2. 157. *L'Herit. Sert.*

t. 20. *Bot. of New Holland*, 43.

A native of the warmer parts of New Holland. It is the only species here described which we have not received from Port Jackson. The round branches and flower-stalks distinguish it from the last, to which it is most nearly allied.

11. *E. corymbosa*, operculo hemisphærico mucronulato, calyce tereti, umbellis corymboso-paniculatis terminalibus.

*E. corymbosa*. *Bot. of New Holland*, 43.

The flowers are large and handsome, forming magnificent terminal paniced clusters of umbels, by which this species is readily distinguished. Leaves lanceolate, coriaceous. Fruit turbinate, the permanent calyx forming a very high urceolate border, the style remaining in the centre of the cavity.

A fine plant of this kind is in the collection of Messrs. Lee and Kennedy, but has not yet flowered.

12. *E. paniculata*, operculo hemisphærico submutico, calyce anguloso, umbellis subpaniculatis terminalibus.

This differs from the last in its angular calyx and less pointed

*operculum*,

*operculum*, as well as in being smaller in all its parts. The umbels do not form so considerable a compound cluster or *corymbus*, but are collected about the tops of the branches into a small panicle, the lowermost of them being axillary.

My specimens were gathered at Port Jackson by Mr. David Burton, and I received them from Sir Joseph Banks's herbarium.

Of all these twelve species of *Eucalyptus*, I am not certain of any more being in the gardens than the *corymbosa*, *obliqua*, and *piperita*. The latter is very common, and may be known by its smell, resembling that of peppermint.—There are however several New Holland shrubs in the collections about London, which I suspect to belong to the same genus; but having never seen their fructification, I cannot ascertain them.